CLAIMS:

1. A valved process chamber on a sample processing device, the valved process chamber comprising:

a process chamber comprising a process chamber volume located between opposing first and second major sides of the sample processing device, wherein the process chamber occupies a process chamber area on the sample processing device, and wherein the process chamber area comprises a length and a width transverse to the length, and further wherein the length is greater than the width;

a valve chamber located within the process chamber area, the valve chamber located between the process chamber volume and the second major side of the sample processing device, wherein the valve chamber is isolated from the process chamber by a valve septum separating the valve chamber and the process chamber, and wherein a portion of the process chamber volume lies between the valve septum and a first major side of the sample processing device; and

a detection window located within the process chamber area, wherein the detection window is transmissive to selected electromagnetic energy directed into and/or out of the process chamber volume.

2. A valved process chamber according to claim 1, wherein the detection window is coextensive along the length of the process chamber with the valve septum.

3. A valved process chamber according to claim 1, wherein the detection window is formed through the first major side of the sample processing device.

4. A valved process chamber according to claim 1, wherein the detection window is formed through the second major side of the sample processing device.

5. A valved process chamber according to claim 1, wherein the valve chamber and the detection window occupy mutually exclusive portions of the process chamber area.

6. A valved process chamber according to claim 1, wherein the detection window is formed through the second major side of the sample processing device, and wherein the valve chamber and the detection window occupy mutually exclusive portions of the process chamber area.

7. A valved process chamber according to claim 1, wherein the valve septum extends along the length of the process chamber area for 30% or more of a maximum length of the process chamber area.

8. A valved process chamber according to claim 1, wherein the valve septum extends for a length of 1 millimeter or more along the length of the process chamber.

9. A valved process chamber according to claim 1, wherein the sample processing device is opaque between the process chamber volume and the first major side of the sample processing device.

10. A valved process chamber according to claim 1, wherein at least a portion of the valve chamber is located within a valve lip extending into the process chamber area, and wherein the valve septum is formed in the valve lip.

11. A valved process chamber according to claim 10, wherein the valve lip occupies only a portion of the width of the process chamber area.

12. A valved process chamber according to claim 11, wherein the detection window occupies at least a portion of the width of the process chamber area that is not occupied by the valve lip.

13. A valved process chamber on a sample processing device, the valved process chamber comprising:

a process chamber comprising a process chamber volume located between opposing first and second major sides of the sample processing device, wherein the process chamber occupies a process chamber area on the sample processing device, and

wherein the process chamber area comprises a length and a width transverse to the length, and further wherein the length is greater than the width;

a valve chamber located within the process chamber area, the valve chamber located between the process chamber volume and the second major side of the sample processing device, wherein the valve chamber is isolated from the process chamber by a valve septum separating the valve chamber and the process chamber, and wherein a portion of the process chamber volume lies between the valve septum and a first major side of the sample processing device, and further wherein the valve chamber and the detection window occupy mutually exclusive portions of the process chamber area, and still further wherein at least a portion of the valve chamber is located within a valve lip extending into the process chamber area, and wherein the valve septum is formed in the valve lip ; and

a detection window located within the process chamber area, wherein the detection window is transmissive to selected electromagnetic energy directed into and/or out of the process chamber volume.

14. A method of selectively removing sample material from a process chamber, the method comprising:

providing a sample processing device comprising:

a process chamber comprising a process chamber volume, wherein the process chamber occupies a process chamber area on the sample processing device, and wherein the process chamber area comprises a length and a width transverse to the length, and further wherein the length is greater than the width;

a valve chamber located within the process chamber area, wherein the valve chamber is isolated from the process chamber by a valve septum located between the valve chamber and the process chamber; and

a detection window located within the process chamber area, wherein the detection window is transmissive for selected electromagnetic energy;

providing sample material in the process chamber;

detecting a characteristic of the sample material in the process chamber through the detection window;

forming an opening in the valve septum at a selected location along the length of the process chamber, wherein the selected location is correlated to the detected characteristic of the sample material; and

moving only a portion of the sample material from the process chamber into the valve chamber through the opening formed in the valve septum.

15. A method according to claim 14, wherein moving only a portion of the sample material from the process chamber into the valve chamber comprises rotating the sample processing device.

16. A method according to claim 14, wherein the process chamber area comprises a length and a width transverse to the length, and further wherein the length is greater than the width.

17. A method according to claim 14, wherein the detected characteristic comprises a free surface of the sample material, and wherein the portion of the sample material moved from the process chamber into the valve chamber comprises a selected volume of the sample material.

18. A method according to claim 14, further comprising rotating the sample processing device to separate components of the sample material in the process chamber.

19. A method according to claim 18, wherein the detected characteristic of the sample material comprises a boundary between the separated components of the sample material, and wherein the portion of the sample material moved from the process chamber into the valve chamber comprises a portion of a selected component of the sample material.

20. A method according to claim 14, wherein moving only a portion of the sample material from the process chamber into the valve chamber comprises moving a selected volume of the sample material from the process chamber into the valve chamber.

21. A method according to claim 14, wherein the sample material comprises blood.

22. A method of selectively removing sample material from a process chamber, the method comprising:

providing a sample processing device comprising:

a process chamber comprising a process chamber volume, wherein the process chamber occupies a process chamber area on the sample processing device, and wherein the process chamber area comprises a length and a width transverse to the length, and further wherein the length is greater than the width;

a valve chamber located within the process chamber area, wherein the valve chamber is isolated from the process chamber by a valve septum located between the valve chamber and the process chamber; and

a detection window located within the process chamber area, wherein the detection window is transmissive for selected electromagnetic energy;

providing sample material in the process chamber;

detecting a characteristic of the sample material in the process chamber through the detection window;

forming an opening in the valve septum at a selected location within the process chamber area, wherein the selected location is correlated to the detected characteristic of the sample material; and

moving only a portion of the sample material from the process chamber into the valve chamber through the opening formed in the valve septum by rotating the sample processing device.